

## **NASA Aeronautics Competition: 2006-2007 Academic Year, High School Division**

### **Air Transportation in 2057**

Part of NASA's mission is to inspire the next generation of engineers, scientists, and explorers. Our hope is that the high school competition will inspire and encourage students to continue with science and engineering in college and beyond. The high school competition asks students to think about the future of air and space transportation and the technical and scientific challenges that will enable it.

#### **The challenge, for individual students or groups:**

**Individual students:** Imagine living and working 50 years into the future. Write a 5-7 page essay describing your informed ideas about how air and space transportation has changed due to the successful implementation of supersonic and/or hypersonic technologies. For example, imagine yourself in a futuristic scenario made possible by supersonic and/or hypersonic flight. Look back on the technical advances that have made such flights routine. This is just one example; students can imagine other ways to address this challenge.

**Multi student teams, 2 or more students:** In addition to writing a 5 - 7 page essay, support your informed view of future transportation with illustrations and/or interviews with peers, parents, and/or other members of your community. Total page limit is 15 pages.

#### **Due Dates:**

**Notice of intent\* December 15, 2006**

**Final entry is due on or before March 15, 2007**

\*A notice of intent tells NASA that you plan to enter the competition. This helps us to determine how many reviewers we need for the final entries.

The notice should be emailed and should include the following details:

To: e.b.ward@larc.nasa.gov  
Subject line: High School Competition

Body of message contents:

student's name(s)  
teacher's name  
name and location of school (city and state)  
type of school (public, private, or home school)  
grade level of student(s) (9, 10, 11 or 12)  
email address for student and teacher

## Eligibility:

Any US student enrolled in an accredited high school, secondary school, or home school in the US or its territories is eligible to enter the competition for cash prizes. Non-US citizens and students in international locations can enter as well, but they are not eligible for cash prizes. Trophies and certificates will be awarded to each winner, regardless of citizenship.

Each entry must be sponsored by a teacher, parent or guardian, or other adult mentor associated with the student's education. This means that a responsible adult must review and approve the student entry before it is submitted to NASA. The adult should also affirm that the student did the research and writing themselves.

## Resources:

Students can search NASA's web sites for the latest information on supersonic and hypersonic projects. Detailed reference documents written for university or industry level readers can be found at [http://aerospace.nasa.gov/programs\\_fap.htm](http://aerospace.nasa.gov/programs_fap.htm)

For background information, students can use periodicals such as *Scientific American*, *Popular Science*, *Popular Mechanics*, *Aviation Week*, SAE Aerospace Engineering on-line, AIAA publications, etc.

Students should consult with their high school English teacher to make sure their entries are well written and references are noted appropriately.

## Submission Requirements

**Note:** Student submissions shall be treated as being free of restrictions and limitations on their use, reproduction, and publication.

- **Title page listing:** School Name, Team members, Teacher's name, Complete mailing address of school, complete email and phone contact information for student team leader and teacher.
- **Format:** All papers must be submitted digitally as MS Word or Adobe PDF documents. Paper copies will be accepted only from schools or students that do not have access to the necessary software and arrangements must be made in advance for hard copy submission. Fax copies will not be accepted.
- **Individual entries:** At least five, but no more than 7 pages, typed, single-spaced, no less than 10 pt. font, one-side only. Page requirement excludes title page and reference pages. All pages except title page should be numbered in the lower right hand corner. All references in the paper should be footnoted using the format given in a college level writing style manual or as instructed by the writing handbook accepted by their school's English department.
- **Team entries (2 or more students):** The same requirements as above for the 5-7 page essay. In addition, the team entries should include illustrations and/or supporting information from interviews with peers, parents, community members,

local airport officials, etc. Illustrations must be in jpg or pdf format and at least 300 dpi resolution. Illustrations or diagrams must be labeled and include a detailed caption stating how the illustration supports the essay. Other supporting information must be well documented with names of those interviewed, times and dates of interview, etc.

- Digital copies of file size 10 MB or less should be sent via email attachment to e.b.ward@larc.nasa.gov
- For team entries that exceed 10 MB file size, break the entry into two or more sections and send via email or send the complete entry on CD to arrive no later than the due date to:

Dr. Elizabeth B. Ward  
High School Competition Entries  
Mail Stop 218  
NASA Langley Research Center  
Hampton, VA 23681  
Phone Number: 757-864-7638

### **Criteria for Evaluation**

Each project will be judged on its own merit by a group of federal, university, industry, and/or other expert representatives. Award level entries will be well written, thorough, and concise. Entries will be judged on how well students have focused their essay and how well they have addressed four basic criteria: Informed Content\*, Creativity and imagination, Organization, and Writing.

Scores will be determined using the following guideline:

- Informed Content\*, 30 points
- Creativity and imagination, 30 points
- Organization of the essay, 20 points
- Writing, including documentation, 20 points

\*Informed content means that the students have educated themselves about the technologies and have set their essay in the context of scientific and technically valid information. This should be demonstrated with a list of references at the end and with citations of sources in the document where needed. Under no circumstances should students copy the words or ideas of others without proper documentation. If students use ideas or words of others, they should give credit to their source of information using a standard reference or footnote format. Papers submitted with plagiarized material will be disqualified.

## **2006-2007 Awards**

Each student that enters will receive a NASA Certificate.

Entries that receive the highest overall scores will receive trophies and cash prizes.

The amount of cash prizes are subject to available funds.

We expect to be able to make the following awards to the high school winners; however, amounts may change based on available funds in the spring of 2007:

- First prize, Team entry: \$1500 to the team
- First prize, Individual entry: \$1000

The following awards will be for individuals or teams. Amounts will be determined based on available funds:

- Second prize
- Third prize
- Honorable mention

In the case of a tie, prizes will be determined based on available funds.

Winning essays may be posted to NASA web sites.

The competition is sponsored by the National Aeronautics and Space Administration Fundamental Aeronautics Program, Aeronautics Research Mission Directorate, NASA Headquarters, Washington, DC. The competition awards are administered by Christopher Newport University through a grant with NASA Langley Research Center, Hampton, VA.